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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/509,384	09/24/2004	Jeung-Eui Seo	01055-1000	2005

7590 06/27/2005

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EXAMINER	
SANDERS, KRIELLION ANTIONETTE	
ART UNIT	PAPER NUMBER
1714	

DATE MAILED: 06/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/509,384	SEO, JEUNG-EUI	
	Examiner	Art Unit	
	Kriellion A. Sanders	1714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-5 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-5 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 1/11/05.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-5 are rejected as being unpatentable under 35 USC § 103(a) as being unpatentable over Andersen et al, US Patent No. 6168857.

Andersen et al discloses biodegradable starch-based compositions and methods for manufacturing sheets thereof wherein said sheets have a starch-bound matrix reinforced with fibers and optionally include an inorganic mineral filler. Suitable mixtures for forming the sheets comprise water, unmodified and ungelatinized starch granules, an auxiliary water-dispersible organic polymer, fibers, and optionally an inorganic mineral filler in the correct proportions to form a sheet having desired properties. The sheets and films of the Andersen invention are rendered strong through the gelation of the starch-based binder in water followed by evaporation of the water. Starch is a natural ***carbohydrate*** chain comprising polymerized glucose molecules that are found in nature in the form of granules. Starch granules include two different types of glucose chains: unbranched, single-chained ***amylose*** and branched multi-chained amylo-pectin.

The Andersen et al invention provides for the use of starch in combination with an auxiliary polymer for reducing adhesion. This combination of small amount of auxiliary polymer with a starch binder provides the advantages of substantially reducing the cost of making the sheets, while preventing the starch from sticking to the rollers during the sheet forming process. In addition, including relatively large amounts of starch results in sheets which are generally stronger, less brittle, and more ***biodegradable*** than sheets that include a high amount of auxiliary polymer binders.

In order for the moldable mixture to have adequate workability, water must generally be included in quantities sufficient to wet each of the inorganic aggregate particles, fibers, or other solid particles, to solvate or at least disperse the auxiliary polymer, and to at least partially fill the interstices or voids between the particles. In some cases, such as where a dispersant or a ***lubricant*** is added, adequate workability can be maintained while using less water initially. The auxiliary polymers have greatly varying levels of water solubility or dispersability, as well as varying levels of viscosity and yield stress. For example, a 2% solution of Tyloseg FL 15002 (a methylhydroxyethelcellulose) at 20.degree. C has a viscosity of about 15000 cps, while a similar solution of Tyloseg 4000 has a viscosity of about 4000 cps. The former greatly increases the yield stress and plastic-like properties of a moldable mixture, while the latter may act more as a ***lubricant*** or plasticizer.

Suitable water-dispersible synthetic organic polymers include, polyvinylalcohol and polyacrylic acids.

Suitable plasticizers for use in the present invention include polyethylene glycol (polypropylene glycol, glycerin, polyglycerine, sorbitol, mannitol, erythritol, xylitol, Such

materials can be used to cause the formed sheets to behave in a thermoplastic manner once a sufficient amount of water has been removed by evaporation While residual water can assist in causing the formed sheets to behave in a thermoplastic manner, the plasticizers cain yield thermoplastic sheets even in the absence of water. Virtually any polyhydric alcohol can be used as a plasticizer within the scope of the invention.

The moldable mixture is blended and transported to an extruder and a series of rollers. The moldable mixture is formed into a sheet by extruding the material through an appropriate extruder die and then passing the extruded material through at least one pair of reduction or forming rollers. Cutting the sheet to a predetermined size would be obvious to the art-skilled.

Calcium carbonate is also used in the Andersen et al compositions. See the working examples.

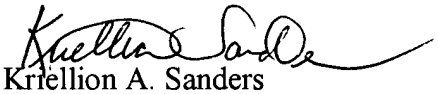
The binding matrix including starch is present in a concentration in a range of 15% to about 75% by weight of total solids in the sheet. The auxiliary water-dispersible organic polymer, is present in a concentration in the range of from 1% to about 10% by weight of total solids in the sheet. The inorganic mineral filler is included in a range from 0% to about 90% by weight of total solids in the sheet. The inorganic mineral filler has a concentration in a range from about 10% to about 80% by weight of total solids in the sheet.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to elect the most advantageous weight percentages of components from those disclosed within the Andersen et al invention to achieve the greatest results of biodegradability and strength. Since the starch component of Andersen et al is the same as applicant's it is thought that the water content of the starch components is also the same.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kriellion A. Sanders whose telephone number is 571-272-1122. The examiner can normally be reached on Monday through Thursday 6:30-7:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kriellion A. Sanders
Primary Examiner
Art Unit 1714

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